THE INFLUENCE OF ENTRY QUALIFICATIONS ON THE LEARNING PROCESS AND ACADEMIC ACHIEVEMENT: INSIGHTS FROM SELECTED VOCATIONAL EDUCATION AND TRAINING INSTITUTIONS-TANZANIA

Shukurani Mgaya[1*], Josephat S. Itika[2] and Emmanuel D. Ndikumana[3]

[1]Department of Management Studies, Tanzania Institute of Accountancy, Tanzania
[2-3]Department of Public Service and Human Resources Management, Mzumbe University, Tanzania

Abstract: Academics have long debated the link between academic entry requirements for specific educational levels and academic accomplishment in the classroom. The arguments have been more critical in vocational education where students' prior learning influences their ability to master and apply specific hands-on skills provided in colleges. Based on this academic stance, this study investigates the relationship between academic entry requirements, the learning process, and academic achievement of students enrolled in civil engineering courses (masonry and carpentry CBET level 2) at Vocational Education Training Institutions (VETs) in Morogoro Region, Tanzania. The study applied a qualitative exploratory approach to collect data from 20 trainers. Data were gathered by conducting semi-structured interviews with trainers and applying documentary reviews to determine the admission requirements and outcomes of 92 learners. The qualitative data that informed this study were analyzed through content analysis using the MAXQDA2020 program, and the findings were presented in the form of quotations, summaries, and figures. The results suggest that students' entry qualification during college enrollment, their capacity for learning and ultimate academic accomplishment is likely to be directly related. However, learners' prior admission requirements for accessing vocational education have a favorable impact not only on academic accomplishment at VET but also on the decision to continue learning at further education levels. To moderate continuous academic credit, the admission requirements for the selection of students to enroll in vocationally based courses should also take into account their unique cognitive abilities.

Keywords: Entry qualification; learning process, academic achievement, vocational education and training

The entry requirements of potential candidates are necessary prerequisites in formal education and training for successful academic achievement at any desired level of study. Entry qualifications are the requirements that a person must meet in order to enroll in a particular level of education or training, according to Ogbonnaya et al. (2014). They serve as standards for evaluating an applicant's potential for learning at a certain level of education or training (NACTE, 2019; European Parliament, 2014). According to studies, this prerequisite may include both cognitive and non-cognitive qualities, such as the learner's prior knowledge and personality traits; however, cognitive qualities were found to be crucial for student achievement, which is determined through academic grades (Brunello & Schlotter, 2011; Çalişkan, 2014; Kaya & Akdemir, 2016; Nakayama et al., 2021; Ndege, et al., 2018). However, this recognition does not downplay the significance of the learning process itself in transferring desired knowledge, abilities, and attitudes (World Bank, 2014). Academic achievement is

*Corresponding Author: shukuranimgaya@gmail.com

reliant on the effort put into the learning process, argues Bhattacherjee (2012). Although admission qualifications are not the only determinant of the learning process and academic accomplishment, the imperative role they play in various academic systems, particularly in vocational training institutions cannot be overemphasized.

Entry Qualification for Vocational Education and Training

Any country's development depends on vocational education and training (VET), which prepares its workforce, for enhanced productivity (Nguliamali, & Temu, 2012). It serves as the main system of instruction and training for obtaining specialized knowledge, abilities, and attitudes in order to produce competent laborers for a variety of industries and professions (International Labour Organization [ILO], 2019). Based on this aspect, it is believed that VET entrance qualifications are accessible to everyone who desires to enhance his/her career competence and learn new skills for the future (Machumu, et al., 2016; Torrington, et al., 2008). Nevertheless, according to the Organization for Economic Cooperation and Development (OECD, 2015) and ILO (2013), individuals must complete at least a basic primary education since the fundamental knowledge, abilities, and attitudes that learners acquire in primary school are a requirement for future education and academic achievement. In order to enhance the learning process and academic accomplishment at the VET level, Hategekimana (2014) emphasized that an ordinary-level education certificate and a pass in science courses are essential admission qualifications. This was because the VET admission criteria system, which functions in a setting where social and economic public reforms are continually taking place, hinders learners' ability to study and achieve academically (Nguliamali & Temu, 2012).

Additionally, it was found that in order to qualify for enrollment into VET civil engineering programs, including masonry and carpentry programs, students must score well in mathematics and science-related courses (Masele & Tweve, 2018; United Nations Industrial Development Organization [UNIDO], 2017; United Republic of Tanzania [URT], 2013, 2016, and 2018). In addition, English language was regarded as essential in VET in order to facilitate communication through technology, business, and administration (Masue, 2014). Mkimbili (2018) noted inconsistent use of both Swahili and English as the primary language of instruction despite this English language requirement, noting that neither language is well-developed to support efficient learning. According to Kaya and Akdemir (2016), unique cognitive abilities are critical at the initial stages of learning mathematics and foreign languages. It follows that students with excellent backgrounds in mathematics and English are probably the best prospects for the field but locating them can be difficult. As a result, the importance of preceding education as an entry requirement for the learning process and academic success should not be understated. Many academics have examined the phenomenon of VET, but they have not shown how entry requirements affect academic accomplishment and learning, which is the current study's main focus.

Furthermore, other scholars have revealed that students with exceptional academic performance often pursue secondary education rather than vocational education due to unfavorable parent's and learners' attitudes toward VET (European Centre for the Development of Vocational Training [Cedefop], 2018; OECD, 2020; Republic of Turkey, 2014). Upper secondary education is thought to be more important for a successful career and higher education as opposed to vocational education. As a result, VET has approved applicants with lower entry requirements (Al-alawneh, 2020; Andreoni, 2018; Association of Tanzania Employers [ATE], 2007; Bennell, 1998; Ngure, 2013; URT, 2021) and this has rendered the learning process and academic achievement a challenge (Amani, 2017). The goal of the current study is to investigate how admission qualifications affect academic performance in VET.

When all other criteria were equal, Shields and Masardo (2015) found that students with low-entry qualifications were less likely to achieve academic excellence at the bachelor and diploma levels. In their investigation of the elements influencing students' academic performance in Pakistan, Ali et al. (2013) found that the entry qualifications of students have an impact on their academic achievement. Çalişkan (2014) discovered that affective behavior had a less significant relationship with academic achievement than cognitive behavior did. This was in reference to entry behavior and its correlation with academic performance in degree levels under the education profession in Turkey. The study analyzed students' cognitive and affective behavior in degree programs. In order to fill this gap, the current study used a qualitative approach to investigate how an entry qualification in vocational education and training is related to general entry and cognitive behavior.

In Nigerian building structures, Opoko et al. (2018) discovered no association between entry requirements and academic achievement of architecture students. According to Nakayama et al. (2021), a learner's essential traits, such as information literacy which is related to the capacity to use information technology and the appropriate attitude to approach the offered information's content, have an impact on the learning process. Low entrance credentials have a negative effect on trainee skill development, as evidenced by Chepkoech and Wanjala's (2020) study on the role of trainees' entry qualifications on skill development for Kenya's attainment of her 2030 Development Agenda. In Kenya, Ndege et al. (2018) investigated the quality of entry behavior at secondary education and discovered a relationship between entry qualifications and academic quality. Other variables included gender and scores from primary school examinations. In order to fill this gap, the current study will evaluate the entry qualification for VET. The variables for assessment included general cognitive behavior that aids learners in understanding taught information, prior education attained before joining VET, and specific cognitive skills, including mathematics as required in masonry and carpentry courses. Lukindo (2016) found that in the Tanzanian milieu, a learner's existing knowledge or experience was a significant influence in improving their capacity to acquire skills and perform better on final examinations, which in turn led to increased academic accomplishment. In contrast to the current study, which focuses on how entry qualifications affect the learning process and academic accomplishment at VET, the previous research focused on the secondary school English course.

However, Sumra and Katabaro (2016) discovered that the issue of learner quality is more linked to curriculum and teacher-student interaction than it does to entry qualification. The goal of VET programs, according to Haji (2015), is to align the knowledge, skills, and attitudes taught with the demands of the unregulated market. The entry qualification of learners for the learning process and academic achievement should not be disregarded, even though Sumra and Katabaro (2016) and Haji (2015) indicated that there is less to do with the entry qualification of learners due to informal sector requirements, time, environment, and technology, there have been few studies focusing on VET, and inconclusive debates regarding the impact of entry qualifications on learning and academic accomplishment. Therefore, the current study contributes to the discussion by bringing new knowledge into the literature about how entry qualifications affect learning and academic accomplishment at VET institutions.

The six sections of the study—an introduction, theoretical justification, methodology, findings and discussions, conclusion and suggestions, study limits, and areas for future investigations are designed to address the problem. Three study questions where this paper is based were answered through this study:

- What are VET's entry qualifications for the masonry and carpentry courses?

- Is there any relationship between entry qualifications and academic achievement (final examination results for academic achievement and progression with other levels of education)?

- What are the challenges that hinder the learning process and academic achievement?

Significance of the Study

The findings established in this study are imperative in various ways. For instance, the study will theoretically provide evidence that supports the realization of entry qualification in the learning process and academic excellence at VET. It is anticipated that the findings might inform the government, stakeholders, and facilitators of vocational training about the value of taking applicants' entry qualifications into account when deciding whether to admit them to VET for a satisfactory learning process and academic accomplishment. Also, few studies have been conducted on entry qualification and academic achievements in the Tanzanian context researchers have shown that entry qualification has a direct relationship with academic achievement in secondary schools (Kopweh, 2014; Lukindo, 2016). Therefore, examining the entry qualification and academic achievement at VET basing on Blooms general and specific cognitive entry behaviours will add knowledge in the empirical literature.

Theoretical Framework

This paper was grounded on Bloom's Taxonomy framework (Bloom, 1956). The cognitive (knowledge), psychomotor (skills), and affective (attitude) domains of Bloom's Taxonomy are used to classify learning. These three domains aid the learner in remembering, understanding, applying, analyzing, evaluating, and creating. Ultimately, mastering information, expressions, tool use, and examination techniques will result in academic achievement which is measured by score grades. Learning at all levels is based on cognitive behavior, which can be either general cognitive behavior or specific cognitive behavior, according to Bloom, as described in Kaya and Akdemir (2016). Reading comprehension and language proficiency are general cognitive entrance behaviors that are necessary for all learning activities and all pre-learning activities that simplify learning behavior. Each new learning activity should expand on prior understanding, according to the theory. Additionally, there is unique cognitive entry behaviors that are related to the previous knowledge needed to understand a unit. These behaviors end up being the key to students succeeding in these kinds of courses if the units have required linkages and learning phases. For instance, in order to solve an equation with two unknowns in mathematics, it is necessary to learn a simple equation; in order to understand passive sentence structures in a foreign language, it is necessary to learn active sentence structures; and in order to comprehend the causes of an event in history, it is necessary to understand the facts surrounding the event. In mathematics, science, and foreign language classes, particular cognitive entrance behaviors are crucial. In addition, Bloom emphasized that a learner who is able to study, retain information, and convey knowledge verbally or in writing is likely to succeed academically and consequently move on to the next academic level.

Additionally, according to Bloom, learners' academic achievement was evaluated by first anticipating a normal distribution prior to the comparison of their performance. The students who performed the best or made the fewest errors were awarded A grades, while those who performed slightly less were awarded B grades. The majority of pupils obtained grades of C, those who performed below average

were awarded Ds, and those whose performance was unsatisfactory were allotted an F grade. In this instance, it is presumable that particular cognitive behaviors, as opposed to general cognitive behaviors, are more effective in academic accomplishment. The framework is founded on the assumption that there are two entry requirements for learning that enable the attainment of a higher level of learning. The use of both these general and specific cognitive behaviors can help students succeed in the classroom (Kaya & Akdemir, 2016). The model was utilized across disciplines by Oosthuizen et al. (2019), Mwakamele (2018), Kopweh (2014), and Athanassiou et al. (2003).

Effective abilities necessary for admission into the next level of school are both general cognitive and specific cognitive entering behavior. Traditionally, the entry requirements for one level of education to another level of education have been determined by the scores on academic transcripts and certificates based on exam results. For our purposes, the level of education acquired prior to commencing VET counts as one of the entry requirements. The previous level aids learners in developing the knowledge, abilities, and attitudes that facilitate learning at the subsequent stage. The links and interactions between academic accomplishment, the learning process, and entry qualification are shown in Figure 1.

Before advancing on to the next level of education, students must exhibit entry behavior, which is described as the prerequisite knowledge, attitudes, and abilities that they already possess and are pertinent to the learning process (Ndege et al., 2018). Effective abilities necessary for admission into the next level of school are both general cognitive and specific cognitive entering behavior. However, historically, the entry requirements from one level to another of education have been established using scores on academic transcripts and certificates based on exam results. Entry requirements for this study include the degree of education attained previous to starting VET (primary education, secondary education and others). Specific cognitive behavior lists mathematics proficiency as one of the industry's most desired skills. The model is crucial for this research since it makes it possible to identify learning concepts such as learning instructions, academic accomplishment, and general and specialized cognitive entry behaviors. The links and interactions between academic accomplishment, the learning process, and entry qualification are shown in Figure 1.
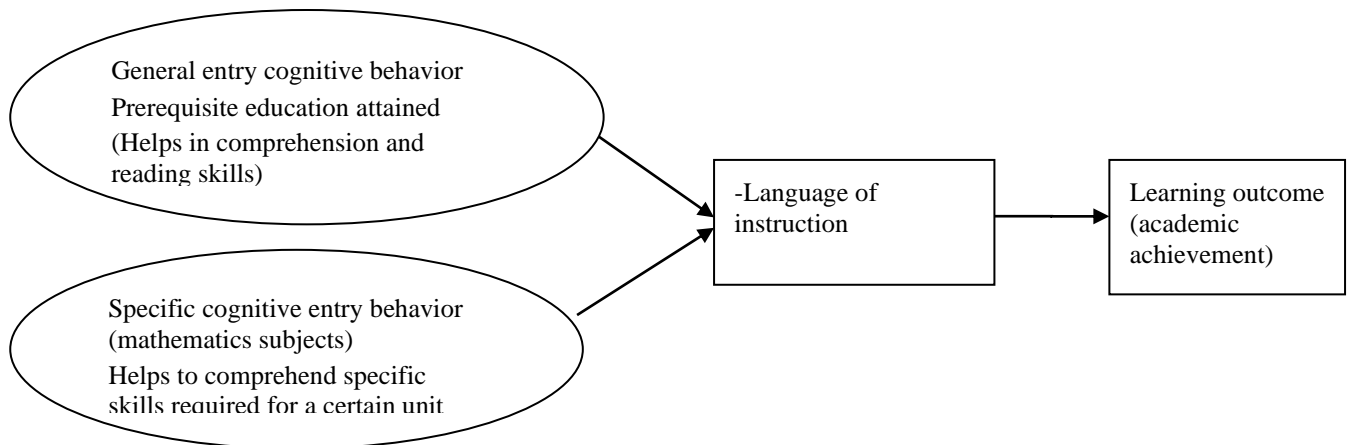

Figure 1. Bloom Taxonomy mastering of skills model
Source: Adopted and modified from Bloom, as cited in Kaya and Akdemir (2016, p. 104)

Figure 1 illustrates the relationship between general cognitive behavior and special cognitive entry behavior, which in the current study included education attained prior to VET enrollment. Another enrollment requirement is having excelled in the mathematics subject (from a school where English was the medium of instruction) and how they influence learning outcomes, as measured by final exam scores.

VET Situation in the Tanzanian Context

The Vocational Education and Training Authority (VETA), a statutory body formed by Act No. 1 of 1994 (amended 2006) to provide high-quality vocational education and training that meets labor market demands, regulates vocational education and training (VET) in Tanzania. In addition, VETA is responsible for organizing, controlling, financing, and managing VET funds as well as promoting vocational education and training (Marijani, 2017; Rutayuga, 2014). Tanzania had 822 VET Centres, of which 69 (8.3%) were controlled by the central government, 392 (47.7%) were private, 238 (29.0%) were faith-based institutions, and the remaining 15% were owned by various other entities, including local governments (URT, 2021).

Depending on the subject, entry requirements for extended VET courses range from primary through secondary school education, as well as advancement within VET qualifications (URT, 2014b). Currently, vocational education and training (VET) is offered in more than 93 trades, including mining, carpentry, masonry, plumbing, road building, electrical mechanics, and agriculture and food processing. The issues of a mismatch between acquired information, skills, and attitudes and those required in the job are addressed by all of these trades (Research on Poverty Alleviation [REPOA], 2020). In these vocations, the lowest level of apprehension for graduates from primary and secondary schools exists. The upper level comprises certain middle school graduates from technical schools as well as graduates of advanced secondary education. This suggests that completing primary education improves a learner's chances of pursuing further education and succeeding academically.

Qualification Levels in carpentry and joinery or masonry achieved through VET, along with their entry qualification, include Level I: Applicants must have completed the primary school standard VII certificate, or Ordinary Secondary School Education, or be apprentices from the industry with one year of on-the-job training. Level II: Applicants must have received a CBET performance grade C in Level I's continuous assessment, and Level III: Trainees must receive a minimum CBET performance grade C in Final Assessment for subjects at Level II or have a vocational certificate II (VETA, 2013a, 2013b). From the curriculum, it is clear that the minimum admission requirement for VET in Tanzania is completion of basic primary school, which suggests that applicants without this certification are not eligible to apply. The Tanzanian system of basic education is typically supplemented by vocational education and training.
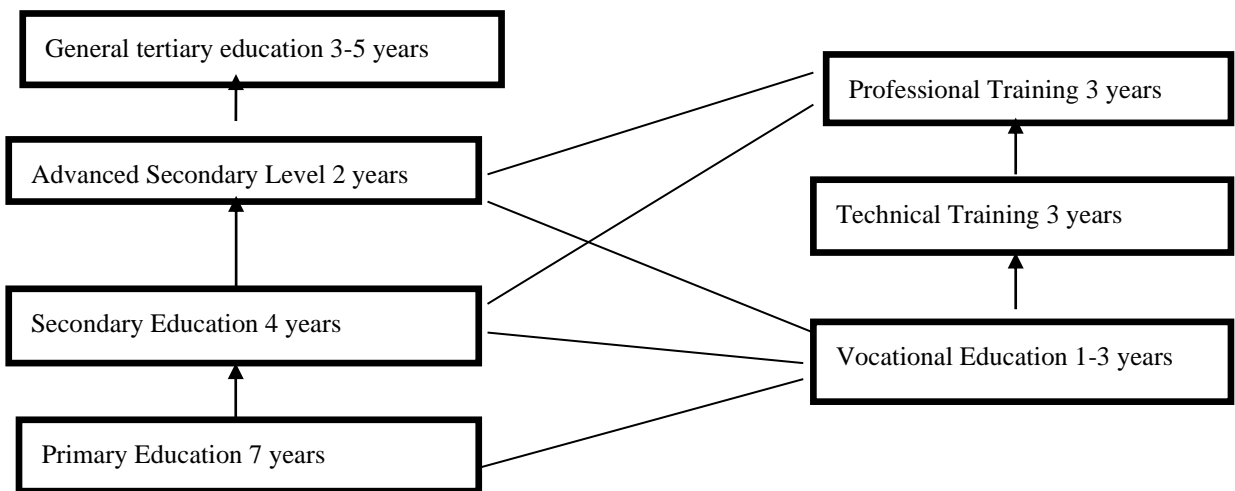
Figure 2. Tanzania's education structure
Source: Copied and modified from (UNESCO_UNVOC, 2016, p.7)

Key: ⟶ *Common routes of education* ⟶ *Alternative routes of education and training*

Methodology

The approach that was used to generate and analyze data on the effects of admission qualification and academic accomplishment is described in this section. Using a qualitative exploratory methodology, data was accrued from VET trainers and students in four selected Vocational Training Centres (VTCs), three of which were public while one was private. Documentary reviews were utilized to gather data on entry qualifications and final exam results for 92 students enrolled in level 2 masonry and carpentry courses in 2020. VET trainers were carefully selected and interviewed. Numerical data were analyzed using MAXQDA2020 software, and content analysis was used to create statistical descriptions of frequencies and percentages. Descriptions were quoted and interpreted.

Study Context

Morogoro was chosen because it is home to four publicly funded VET institutions that are all supervised and managed by the government through VETA in Tanzania. These institutions include the Kihonda Regional Vocational Training Centre (RVTSC), Dakawa Vocational Training Centre (VTC), Mikumi Vocational Training Centre (VTC), and VETA Morogoro Teachers College, all of which offer civil engineering courses. Additionally, one private VET St. Joseph vocational training Centre (VTC-Ifakara), which was the first to offer VET in the region and to admit students to masonry and carpentry courses, was included in the study. VETA was in charge of distributing VET across Tanzania, which included the following cities: Arusha 3, Dar es Salaam 2, Dodoma 1, Geita 1, Iringa 1, Katavi 1, Kigoma 2, Kilimanjaro 1, Lindi 1, Manyara 3, Mara 1, Mbeya 2, Morogoro 4, Mtwara 2, Mwanza 1, Njombe 1, Pwani 1, Rukwa 1, Ruvuma 2, Shinyanga 1, Simi Only Chang'ombe RVTSC offers masonry and carpentry courses within the regions of Pwani and Dar es

Salaam (URT- MoEST, 2021, p. 6). The anonymity of the participant names was taken into consideration prior to data collection by allocating them numbers such as Trainer 01, 02, etc. Despite the fact that the Morogoro region is home to a number of VETs, only those that offered masonry and carpentry courses were selected for the current study.

Purposive Sampling

Because the study was primarily qualitative in nature, participants and study materials were collected through the use of purposeful sampling. The sample size was deliberately selected (Neuman, 2014). 'What standards are utilized to accept students to VET with the intention of providing a response to the question?' Trainers with the necessary training and experience were intentionally selected, including documents for review. At three public VTCs and one private VTC, instructors for the masonry and carpentry programs were chosen through a purposeful sampling process. In total, 20 trainers, 17 (85%) of whom were male and 3 (15%) female, were purposefully handpicked as shown in Table 1 below.

The selection of these trainers was justified since they have sufficient work experience and are knowledgeable about the entry qualifications used in VET. Their educational attainment ranged from certificate to master's degree levels: 2 (10%) pursued certificates, 8 (40%) pursued diplomas, 2 (10%) advanced diplomas, 6 (30%) bachelor's degrees, and 2 (10%) master's degrees. Work experience at VET ranged from 2-31 years 7 (35%) had 1-4 years of work experience, 3 (15%) had 5-10 years of experience, 2 (10%) had 11-15 years of experience, 1 (5%) had 16-20years, 1 (5%) had 21-25 years, 1 (5%) had 26-30 years and 1 (5%) had 31-40 years of work experience. This suggests that instructors had adequate knowledge of the admission qualifications required for the enrollment to VET programs and the correlation between these credentials and academic achievement.

Table 1

Sample Distribution of Trainers

Training Centre	Male	Female	Total	Percent
Kihonda RSVTC	5	2	7	35
Dakawa VTC	6	1	7	35
Mikumi VTC	5	-	5	25
St. Joseph –Ifakara VTC	1	-	1	5
Total	17	03	20	100

Data Collection Methods

Data were collected through documentary review and semi-structured interviews as detailed hereunder.

Documentary Review

The documentary review was used to identify CBET level two entry qualification and final examination results in three public vocational training centres in Morogoro Region, including Kihonda regional vocational training centre (RSVTC), Dakawa vocational training centre (VTC), and

Mikumi vocational training centre (VTC). Registration reports for the school year 2019–2020 and the results of the level two masonry and carpentry final examinations were among the documents examined. Additionally, the 2013a and 2013b VETA curriculum was examined to determine the entry requirements for each learning level. For the 2019–2020 academic years, 92 students were admitted in level 2, of which 62 were in masonry and 30 were in carpentry programs as indicated in Tables 2 and 3 below.

Table 2

Distribution of Learners Enrolled on the 2019/2020 in Masonry and Bricklaying

Training Centre	Male	Female	Total	Percent
Kihonda RSVTC	24	3	27	43.55
Dakawa VTC	6	3	9	14.52
Mikumi VTC	24	2	26	41.94
Total	54	8	62	100.00

Source: Admission Office (personal communication, 2021)

Table 3

Learners Enrolled on the 2019/2020 in Carpentry and Joinery

Training Center	Male	Female	Total	Percent
Kihonda RSVTC	12	1	13	43.33
Dakawa VTC	6	-	6	20.00
Mikumi VTC	11	-	11	36.67
Total	29	01	30	100.00

Source: Admission Office (personal communication, 2021)

Semi-Structured Interview

The interviews were semi-structured, and a few leading questions were used to prompt follow-up (probing) questions during the pre-study discussion. To ensure that there were no interview questions that could have elicited predetermined answers, the researcher prepared interview questions and sought out experienced professionals in the field, including supervisors and a pilot study that was conducted at Mbeya (RSVTC) with six trainers who are not identified in the article. When respondents were unable to provide the required data, probing inquiries were utilized to collect further details and justifications. Semi-structured interviews were designed to help participants conceptualize problems and make connections that "combine into emerging responses," rather than to dictate what they should say. As a result, the goal of the study's semi-structured interviews was to gather data from knowledgeable trainers about how entry requirements aid or hinder academic attainment. Twenty carefully selected trainers were engaged in this interview dialogue. Responses were directly captured using a voice recorder, directly transcribed, and then written down. Respondents were assigned a trainer's 1–20 code to ensure ethical recording practice in research.

Data Analysis

To analyze the entry qualification taken into consideration at VET and the challenges preventing learning and academic achievement, content analysis was used. The following steps were taken: (a)

audio-recorded interviews were transcribed verbatim to produce interview transcripts; (b) transcripts were then read several times to make sense of the entire data set and note interesting phrases and concepts; (c) codes were then assigned to specific meanings or themes in the textual data; (d) as new perspectives emerged, closely related codes were sorted and merged into themes. To examine the connection between entry requirements and academic performance, content analysis was used to study the results documents, collect the grades that were given, add them up among the three vocational training facilities, and present the results as frequencies and percentages.

Validity and Reliability

The researchers employed content validity by analyzing prior research and evaluating the sufficiency and accuracy of instruments with the help of subject-matter experts to ensure that the instrument covered all of the key requirements. Additionally, a pilot study conducted in the Mbeya region involved 20 learners and 6 instructors. The use of several instruments, or data triangulation, was one strategy for insuring accuracy. As their main sources of information, the researcher used semi-structured interviews that allowed for the acquisition of additional details and a review of the relevant documents.

Findings

Students' Entry Qualifications

What entry criteria are considered at VET as entry qualification?

Data were gathered to address this question through the review of available documents and a semi-structured interview with trainers. According to the VETA curriculum (2013a, 2013b) candidates with primary or secondary education were qualified to enroll in the VET masonry and carpentry courses. According to the admissions office statistics, the majority of candidates enrolled in VET after completing ordinary level certificate or basic secondary education (form 4). 4 (6.45%) out of the 62 students who enrolled in the masonry and brick laying course had completed their primary education (standard seven), 56 (87.09%) had completed their basic secondary school (form four), and 2 (3.22%) had completed advanced secondary education (form six). Out of 30 students in the carpentry and joinery course, 4 (13.33%) had completed primary education (standard seven), 25 (83.33%) had completed basic secondary education (form 4), and 1 (3.33%) had completed form six as indicated in Table 4 below. According to the Bloom Taxonomy learning model, which assumes that prior learning experience determines the ability to learn at the next level, it is likely that the majority of individuals who enrolled in VET had acquired comprehension and reading skills from prior learning. It is crucial in any learning process for comprehension and reading skills that influence academic achievement from one level of learning to the next.

The results were in line with empirical studies from the OECD (2015) and ILO (2013), which asserted that people should complete at least basic primary education because the fundamental knowledge, abilities, and attitudes that are learned in basic primary education are necessary for success in higher education. Additionally, Ntallima (2014) found that 56% of VET learners were secondary school dropouts, and the VETA-Tracer Study (2019) found that 68% of candidates joined VET upon completing Form IV. The results, however, were at odds with the VETA-Tracer Study (Vocational Education and Training Authority [VETA], 2010), which discovered that 11.7% of VET candidates were unemployed and that 35.1% were form IV dropouts, 53.2% were primary seven dropouts while

11.7% were unemployed. It is believed that the establishment of subsidized ward secondary schools, which has expanded the catchment area for enrollment of standard seven leavers, is to blame for the increasing enrollment of form four leavers. The transition rate from primary to secondary education tripled to 60% in 2013 after constantly hovering around 25% throughout the 1990s and early 2000s, as was previously mentioned (URT, 2014a).

Additionally, an interview with the instructors indicated that both the masonry and carpentry programs strive to provide students practical skills that are relevant to employment prospects. Two semesters make up the program's one-year duration. The courses featured in the programs were split into two categories: core subjects and supporting subjects like math, life skills, engineering sciences, communication skills, and similar topics. Students had to take a final exam after the course to be evaluated on the material they had learned to move on to the next level. All applicants seeking enrolment in VET programs were required to fill out applications, take aptitude tests, and then be accepted by trainers based solely on their aptitude needs, regardless of their educational background. Even though a primary school certificate was the minimum entry requirement for government VETs, there have been instances where VET programs have accepted applicants who couldn't read or write. This counters the learning theories forwarded by Bloom, who believes that comprehension and reading proficiencies are key entry behaviors into the next educational level. VET is however not primary school and students are not taught to read and write. Thus, allowing illiterate students to enroll may have a detrimental effect on their academic outcomes.

Table 4

Prior Education as Entry Qualification at VET

Education Level B4 VET	Masonry	Percentage	Carpentry	Percentage
Standard Seven	4	6.45	4	13.33
Form Four	56	87.09	25	83.33
Form Six	2	3.22	1	3.33
Total	62	100.00	30	100.0

Source: Admission Office (personal communication, 2021) (Key, B4 VET- level of education attained before joining VET)

Additionally, it was revealed by VET trainers who were interviewed that work experience and completion of primary and secondary school were requirements for admittance into VET. Considering what one trainer said:

> Today, primary education is the minimal requirement for admittance into courses in tailoring, carpentry, and masonry, while secondary education is the requirement for entry into courses in electrical installation, plumbing, motor vehicle engineering, and hospitality (Trainer 11 on 04/10/2021).

According to the opinions of the 20 trainers who were interviewed, they train students with a variety of educational backgrounds, from standard seven to university level, and some even have professional experience. Learners with prior work experience came to learn so they could obtain credentials to demonstrate their professionalism.

Despite this, the Bloom learning model views some cognitive behavior as crucial to mastering a particular unit, such as English as a foreign language and mathematics. The case has been unrealistic since most students who perform well in mathematics enroll in secondary or college education, contrary to what empirical literature has revealed is required for successful learning in science-based vocational education. As a result, VET mainly benefits individuals who performed poorly in their previous education. Grades A through C is thought to constitute good performance (National Examination Council of Tanzania [NECTA], 2014). The results showed that 2 (3.23%) scored a grade A in masonry and bricklaying, 10 (16.13%) received a grade C, 15 (24.19%) acquired a grade D, 2(3.23%) scored a grade E, and 33 (53.23%) were awarded grade F. In contrast, 1 (3.33%) received a grade A in carpentry and joinery, 2 (6.67%) earned a grade of B, 3 (10.00%) earned a grade of C, 7 (23.33%) scored a grade D, 2(6.67%) scored a grade E, and 15 (50.00%) scored a grade F. In mathematics, 51.62% of the sampled students had an average grade of F, meaning they failed the course as shown in Table 5 below. The results ran counter to the Bloom learning model, which said that in order to compare students' academic progress, one should anticipate a normal distribution. The performance distribution curve was skewed since the majority of students received a grade of F, which according to VET standards denotes failure.

Table 5

Entry Qualification based on Mathematics as a Specific Cognitive Skill

Grades in mathematics	Masonry	Percentage	Carpentry	Percentage
A	2	3.23	1	3.33
B	0	0.00	2	6.67
C	10	16.13	3	10.00
D	15	24.19	7	23.33
E	2	3.23	2	6.67
F	33	53.23	15	50.00
Total	62	100.00	30	100.0

standard seven in carpentry, masonry and tailoring courses but form four and above graduates in plumbing, electrical installation, secretarial, motor vehicle mechanics and hospitality courses (Principal 01 (18/11/2021), 23)

Education level (1)

Selection were based on ability to read and write, however in other situation we selected even learners who were not able to read and write in order to impart vocational skills so that they will be able to perform a certain activity with their hands to sustain their living (Principal 02 (15/11/2021), 6)

Mathematics (1)

Read and write (2)

students entry qualification (0)

Mathematics subject was not considered as entry criteria but it was taught as a subject because masonry and carpentry works required individuals who have ability to estimate ratios, heights and Cubic's but results (output) were not good all the time and learners who failed this subject at one level were not allowed to continue with another level of learning. This situation discouraged learners to join VET. Later on we changed to life skills still poor academic performance persisted. This affected negatively VET learners to continue with other levels of learning. (Principal 02 (15/11/2021), 8)

From the beginning of VETs in Tanzania were introduced to impart hands on skills which demanded on ability to read and write. This criteria has remeined for admitting learners on tailoring, carpentry and joinery, masonry and brick lying courses. Other courses including electrical installation, plumbing, motor vehicle engineering and hospitality admission criteria has changed to education level starting form four and above education leavers (Training Coordinator O4 (04/10/2021), 8)
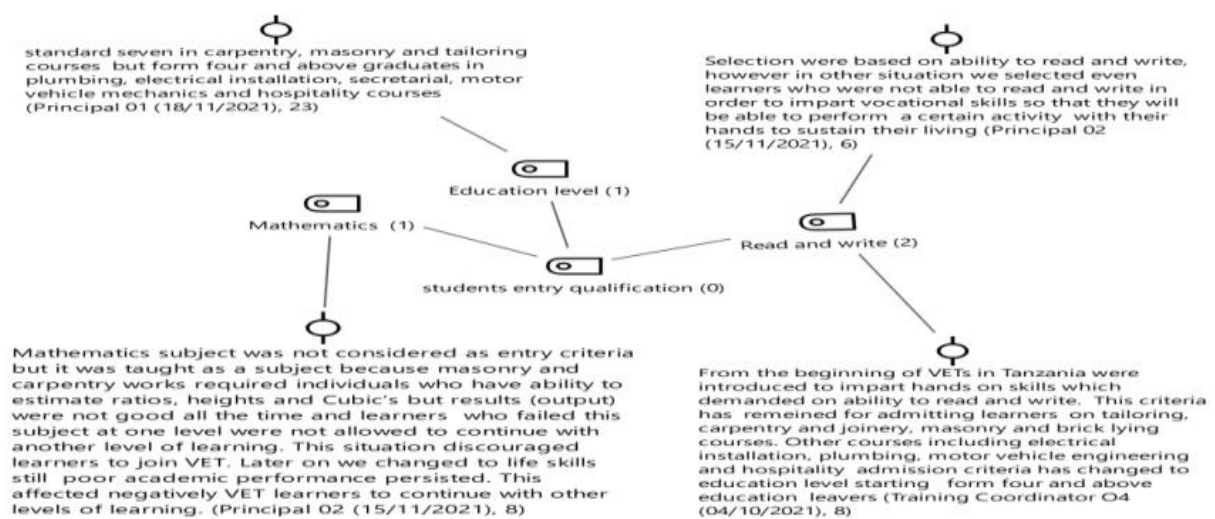
Figure 3. Summary of trainers' interviews on entry criteria

Findings from trainers corresponded with those established during the documentary review as one interviewee stated,

VETA continues to accept a diversity of applicants with various educational backgrounds, including standard VII graduates who should be informed and well-advised on career advancement and the succession framework before gaining admission or during their training process (VETA- Client Service Charter, 2019, p.11)

Relationship between Entry Qualification and Academic Achievement

Is there any significant relationship between entry qualification and academic achievement (final examination results?)

According to the Bloom learning paradigm, A grades were awarded to students who performed at the highest levels or made the fewest errors, while B grades were given to students who performed less satisfactorily. Most students received grades of C, those who performed below average obtained Ds, and those who performed poorly attained an F. A-C learners were considered to be qualified to advance to higher levels of education. The findings demonstrate that, of the 62 students enrolled in the masonry course who took the exam in 2020, 19 (30.6%) passed it and qualified for advancement to the next level of study, while 43 (69.4%) did not perform well enough to qualify. In the carpentry course, out of 30 students, 5 (16.67%) passed the test and qualified to move on to the next level of learning, while 25 (83.3%) did not do well enough and were not qualified to advance to the next level of learning. This suggests that low entrance requirements for a particular cognitive behavior, as illustrated by the Bloom learning model, have contributed to low academic accomplishment and failure to advance to the next level. The findings demonstrate that, of the 62 students enrolled in the masonry course who took the exam in 2020, 19 (30.6%) passed it and qualified for advancement to the next level of study, while 43 (69.4%) did not perform well enough to qualify. In the carpentry course, out of 30 students, 5 (16.67%) passed the test and qualified to move on to the next level of learning, while 25 (83.3%) did not do well enough and were not qualified to advance to the next level of learning. This suggests that low entrance requirements for a particular cognitive behavior, as illustrated by the Bloom learning model, have contributed to low academic accomplishment and failure to advance to the next level. This demonstrates that particular cognitive entry behavior is essential for academic achievement and advancement to other levels because it has a direct association with academic outcomes. The results are displayed in Table 6 and 7 below.

Table 6

Masonry and Bricklaying 2020 Level 2 Final Examination Results (N=62)

Subject	A	%	B	%	C	%	F	%	Remarks
Practical	7	11.3	55	88.7	0	0.0	0	0.0	
Theory	6	9.7	39	62.9	27	43.5	0	0.0	
Field Attachment	52	83.9	10	16.1	0	0.0	0	0.0	
Mathematics	1	1.6	5	8.1	32	51.6	24	38.7	
Technical drawing	0	0.0	8	12.9	26	41.9	28	45.2	
Engineering Science	0	0.0	3	4.8	30	48.4	29	46.8	
Life Skills	0	0.0	30	48.4	22	35.5	7	11.3	3 incompletes
Entrepreneurship Education	0	0.0	3	4.8	41	66.1	18	29.0	
Computer application	0	0.0	10	16.1	48	77.4	0	0.0	1 incomplete
English and communication skills	0	0.0	11	17.7	40	64.5	11	17.7	

Certificates attained VC 2=19, VC1=43

Key: VC 2 were eligible to continue with another level while VC 1 were not eligible to continue with another level until they repeat the examination to be qualified for another level.

Table 7

Carpentry and Joinery 2020 Level 2 Final Examination Results (N=30)

Subject	A	%	B	%	C	%	F	%
Practical	7	23.3	23	76.7	0	0.0	0	0.0
Theory	0	0.0	12	40.0	15	50.0	3	10.0
Field Attachment	15	50.0	14	46.7	1	3.3	0	0.0
Mathematics	0	0.0	2	6.7	10	33.3	18	60.0
Technical drawing	0	0.0	1	3.3	14	46.7	15	50.0
Engineering Science	0	0.0	1	3.3	9	30.0	20	66.7
Life Skills	0	0.0	11	36.7	11	36.7	8	26.7
Entrepreneurship Education	0	0.0	2	6.7	18	60.0	10	33.3
Computer application	0	0.0	4	13.3	26	86.7	0	0.0
English and communication skills	0	0.0	2	6.7	19	63.3	9	30.0

Certificates attained VC2=5, VC1=25

Key: VC 2 were eligible to continue with another level while VC 1 were not eligible to continue with another level until they repeat the examination to be qualified for another level.

What scores were attained in the mathematics subject as the specific cognitive skills required by masons and carpenters?

Out of 62 students taking a course in masonry and bricklaying, 1 (1.6%) obtained a grade of A, 5(8.1%) obtained a grade of B, 32 (51.6%) obtained a grade of C, and 24 (38.7%) earned a grade F, while in a course in carpentry and joinery, 2(6.67%) obtained a grade B, 10 (33.33%) earned a grade C, and 18 (60%) earned a grade F. This suggests that students in the masonry and bricklaying program performed better in their mathematics course than they had in their entry-level courses. This suggests that there was no direct association between the entry qualification, where the majority obtained a grade of F (53.23%), and the final examination at the VET, where 38.7% of students received a grade of F. However, bricklaying courses did not fare any better in mathematics than carpentry ones. It is anticipated that a direct correlation between admission qualifications and output results will be established. According to the data, 50% of applicants received a grade of F, and 60% passed the VET program's final exam. This suggests that passing an entrance exam does not ensure a level of performance that is comparable. Therefore, we can conclude that occasionally learning instruction may improve academic accomplishment even when the Bloom learning mode emphasizes a specific cognitive behavior as vital in academic achievement.

Challenges Hindering the Learning Process and Academic Achievement at VET

What are the challenges that hinder the learning process and academic achievement at VET?

Trainers who responded to this inquiry during the interview said among the difficulties encountered that hampered academic achievement at VET included the English language barrier, students' quality, the number of modules, and evaluation grades, to name a few.

English Language

Trainers' opinions suggested that the English language was used as the assessment and learning medium in all teaching and learning activities. For VET students who were accustomed to speaking Swahili, adjusting to English was challenging. This had an impact on how well students performed in terms of acquiring knowledge, abilities, and attitudes for academic achievement. For instance, one trainer argued that:

> The main obstacle is language; the majority of our students struggle with comprehending and communicating in English, and as a result, the majority of them did not perform well in their final secondary school examinations due to English language challenge. Because we use English as a language of instruction while also using it as a teaching tool, this has a negative impact on our student's academic performance (Trainer, 09 on 18/11/2021).

As revealed, therefore, it is difficult for students from their background to comprehend certain ideas that were frequently utilized in technical topics. As English is used in final exams at VET, language challenges have a negative impact on learning and academic accomplishment. This is in line with the Bloom model of learning, which states that specific cognitive behavior is necessary in learning a foreign language. Even though the VET sector mandates the use of English, Mkimbili (2018) stated that the inconsistent use of Swahili and English as the languages of teaching, neither of which were well-developed affected learners' academic outcomes. To embark this challenge, Hategekimana's (2014) study, suggested that the language barrier should be eliminated by enabling the use of vernaculars for training in specific trades where English competence is not required for knowledge, skills, attitude development and academic accomplishment. However, trainers indicated that English language instruction should be required from primary school through all subsequent levels of education despite the recommendation to adopt local languages to minimize the ongoing difficulty of learning to attain educational excellence. The study reached the conclusion that both Swahili and English should be utilized during the learning process to provide students with the flexibility they need to grasp the knowledge, skills, and attitudes taught.

Quality of Learners

Another obstacle, from trainers' opinion, was the caliber of the students enrolled in VET. Trainers believed that learners enrolled in the VET system were mainly standard seven and secondary school dropouts while others had experience obtained on the job. Such students found it challenging to understand the lessons being taught during the learning process. The circumstance had an impact on students' performance in both theoretical and practical fieldwork classes. This suggests that learning processes and academic success are highly dependent on learners' quality. And finally, attain better in the final examination for academic achievement. To ensure that trainees will be able to understand what is taught to them, it was advised that VET institutions take their qualities into account.

Number of Modules

The need for restricted modules that meet the specialization system is one of the prerequisites for training at VET as opposed to other educational systems. This was in contrast to studies that showed trainees had to take up to twelve (12) modules per semester. Due to the limitations of human memory, students needed to memorize material to advance to the next level and perform better in their final exams. Therefore, a VET training system is recommended to reduce the modules for learners to effectively comprehend.

Assessment Methods

According to VETA Curriculum (2013a, 2013b), VET learners are assessed in the final examination that is centralized and coordinated by the government. VET students in all registered vocational centres take the same examination on a predetermined day. Trainers asserted that the VETA grading system is more stringent because it was evident that students that enrolled with inferior qualifications experienced difficulty achieving grades A, B, and C, which were considered generally good grades as indicated under Table 8.

Table 8

VETA Grading System

Grade		Score Range	GPA
A	Excellent	90- 100	3.5 - 4.0
B	Very Good	75 – 89	3.0 - 3.4
C	Good	60 – 74	2.0 - 2.9
D	Poor	45 – 59	1.0 - 1.9
F	Very poor	00-44	
I		Incomplete	
S		Supplement	
Q		Disqualified	

Source: VETA (2013 p. 18)

NB: Candidates with grades A, B and C will qualify for National Vocational Awards to continue with another level.

The grading method used by VETA faced challenges from students whose background grades were lower than those set by VETA. For instance, for students who completed form four, the grading scale ranged as follows: The grades fall within a 20-mark range, with "A" denoting excellent performance (ranging from 81–100), "B" denoting very good performance (ranging from 61–80), "C" denoting good (a pass mark average that needed improvement), "D" denoting satisfactory (ranging from 21–40), and "F" denoting failure (ranging from 0-20; NECTA, 2014). It is thus conclusive that the exclusion of grade D prompted a significant number of students to fail. Different evaluation techniques were used under the premise of the Bloom learning model, which defined grades A through C as passing grades, D as inadequate, and F as failing. While the real results were categorized as A, B, C, and F, unsatisfactory and fails were combined into one category.

Conclusion

Although basic school and ordinary-level secondary education is widely regarded as essential admission qualifications for vocational education, candidates who could simply read and write were also allowed. In other words, admission was open to individuals who failed to complete primary school. Low performance in the final exam and failure to advance to higher levels were the results of this predicament. Trainers asserted that inadequate entry qualifications hindered learning since trainees struggled to understand what was being taught. The difference between those who had strict entry requirements and those who had laxer ones was, however, negligible when learning required doing something practical. Entry requirements, which include both general and specific behaviors associated with successful learning and academic achievement, are therefore crucial selection criteria. Although the results showed a relationship between entry and academic achievement, it is crucial to

conduct a follow-up study to look into additional variables that may aid or hinder academic achievement during the learning process. This is because the learning process is complex, so it is impossible to draw any conclusions from the results of a study that looked at only two variables namely entry qualification and the learning process. Whether entrance requirements have a direct correlation to academic achievement is a topic of contention. The study adds to those that have discovered a direct connection between admission qualification and academic achievement.

Recommendations

The study advises VET stakeholders to take prerequisite qualifications into account when admitting candidates to VET to attain greater academic accomplishment based on the findings that entry qualification has a relationship with academic achievement.

Limitations of the study

Out of 822 VETs functioning in Tanzania Mainland, four were selected for the study based on two courses, including masonry and carpentry. Although the findings apply to a variety of contexts, extrapolating them to other VET programs would be perilous. As a result, additional research may be undertaken in other courses or broaden its scope to other disciplines.

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